

TRANSMITTER LOCATION FOR ULTRA-
WIDEBAND, TRANSMITTED-REFERENCE CDMA
COMMUNICATION SYSTEM

ABSTRACT OF THE DISCLOSURE

A system and method involve tracking the location of objects within an area of interest using transmitted-reference ultra-wideband (TR-UWB) signals. The system includes at least three base stations communicating with a central processor, at least one mobile device and at least one fixed beacon transmitter of known location. The mobile device is equipped with a transmitter for transmitting a TR-UWB signal to a base station, which then determines a location of the mobile device based on time difference of arrival information between the beacon transmitters and mobile devices measured at all the base stations. Preferably, the area of interest includes a plurality of mobile devices each transmitting a delay-hopped TR-UWB signal according to a code-division multiple access scheme. The mobile devices may be attached to a patient and/or a medical asset within the hospital for tracking purposes. Additionally, patient medical information may be transmitted with the TR-UWB signals to allow patient monitoring to occur simultaneously with asset/patient tracking.